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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/561,664

Applicant(s)

AKRAM ET AL.

Examiner

ISSAM CHAKOUR

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date: _____

DETAILED ACTION

This office action is in response to the amendments and arguments filed on 11/10/2008.

The applicant amended claims 1-14 and introduced new claims 15 and 16.

The applicant amended claims 7 and 8 to remove the deficiency of multiple dependent claims and to overcome the objection regarding claims 7-11. In regards to the aforementioned amendments, the applicant has made the claims in appropriate forms and said claims have been entered and considered. The examiner withdraws the objections concerning claims 7-11.

The applicant has overcome the objection regarding claims 1 and 4 as they contained the misspelled word "synchronised". Correction has been made for the objection is withdrawn.

The applicant has amended claims 12-14 to conform to 35 U.S.C. 101. Corrections to overcome 35 U.S.C. 101 rejections have been made, to include "a computer program product comprising code stored on a computer readable medium for execution of a method..." The examiner withdraws claims 12-14 rejection under 35 U.S.C. 101.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 12-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 12 has been amended to include the language of "program code stored on a

computer readable storage medium” however the recitation of computer readable storage medium is nowhere to be found in the specification or drawings, therefore, it is considered new matter. Applicant is welcomed to point out where in the specification the Examiner can find support for said limitation if Applicant believes otherwise.

Claims 13 and 14 are also rejected by virtue of their dependency on claim 12.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-6 and 8-16 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Kallio (US 2002/0147008) in view of Mitts et al (Mitts, US patent 5,896,373).

5. Consider claim 1, Kallio discloses a method of operating a mobile communication node which has at least a first network interface and a different second network interface (See paragraph [0027], note that the first interface for communication with WLAN and the second for GSM) for providing connectivity with first and second different communication networks respectively (See abstract and figure 1), and which is receiving data from a remote corresponding node (e.g. MSC, see figure 1, item 120) via the first communication network (GSM network, see abstract), in which:

in response to a trigger (See paragraph [0013], lines 11-12), generating a SIP protocol related handover request (See paragraph [0033]) by the mobile communication node to initiate a handover from the first communication network to the second communication network (e.g. WLAN, see abstract); and

on completion of the handover, setting the first network interface to a sleep mode or switched OFF (See paragraph [0048], line 5, note that switching off the unused interface is a sleep mode of the interface);

However, Kallio does not explicitly teach that the initiation of the sleep mode is synchronized specifically with a cessation of a receipt of data packets via the first communication network. Nonetheless, Mitts discloses terminating an access point is synchronized with a cessation of a

receipt (e.g. an indication triggered by a message carrying a marker) of data packets via the first communication network (See abstract 7-14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to consider the feature taught by Mitts in Kallio's invention as a way to acknowledge the termination of data transmission or the end of a session that is no longer of need to communicate the data to the mobile because it would enable the mobile terminal to optimize the use of battery power consumption.

6. In reference to claim 2, Kallio in view of Mitts teaches the method in accordance with claim 1 in which the trigger (e.g. handover command) is a signal sent to the mobile communication node (See paragraph [0050], line 6).

7. In reference to claim 3, Kallio discloses the method according to claim 1, in which the trigger (the trigger is a handover initiation signal sent from the mobile node) is a signal generated by the mobile communication node (See table of steps in page 7, step 5).

8. With respect to claim 4, Kallio in view of Mitts teaches the method in accordance with claims 1, 2, or 3. Kallio further discloses that the handover request is sent from the mobile communication node (See paragraph [0054], lines 4-5; Note that the request is a result of testing for certain conditions and parameter thresholds of signals received from the base-stations) to the corresponding node (e.g. mobile switching center- MSC) via the second communication network (e.g. GSM network) and the initiation of sleep mode (or switching off the corresponding interface upon successful handover process, see paragraph [0048], lines 5-6) is synchronized

with the mobile communication node receiving an acknowledgement message from the remote corresponding node (See paragraph [0057], lines 5-7).

9. Regarding claim 5, Kallio in view of Mitts teaches the method in accordance with claims 1, 2, or 3. Kallio further teaches that the handover request is sent from the mobile communication node to the remote corresponding node via the second communication network (Note that the second network is the GSM network, See paragraph [0054], lines 4-5), a first acknowledgement message (note that the handoff command is an acknowledgement message as well) returned from the remote corresponding node (See paragraph [0057], lines 6-7), and the initiation of sleep mode for the first network interface is synchronized with the sending of the first acknowledgement message by the mobile node (See paragraph [0048], line 5). Kallio fails to explicitly teach a second acknowledgement message is sent from the mobile node to the corresponding node in response to a first one.

However, the examiner takes official notice that it is well known in the art, that, after authenticating, providing the new IP address from the corresponding node, and finalizing the handoff process, sending another ACK signal to the corresponding node by the mobile node is solely for securing records of robust communication sessions and validating successful handoffs. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize acknowledgement message to the CN from MN as a notification of the end of a handoff session because it constitutes a further measure to ensure robust transfer of data. Note further that this modification assures that reliability issues that may arise from synchronous problematic events are mitigated.

10. Consider claims 6 and 16, Kallio in view of Mitts discloses the method in accordance with claims 1, 2, or 3. Kallio as mentioned above discloses a process in which an interface of one of the two interfaces is turned off or put to sleep mode. Kallio fails to explicitly teach that the sleep mode for a first network terminal is initiated in response to a marker in the received data stream. However, Mitts discloses a marker in the received data stream indicating that the received data stream via the first communication network or access point has come to an end (See abstract, lines 1-4 and 13-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kallio's invention with the feature taught by Mitts because by sending an indication that the data is to be discontinued from the interface being used and handed over via the other path would enable Kallio's system to switch a call before an ongoing call to fall below a predetermined quality of service attribute, mitigating the need for threshold conditions test.

11. Consider claim 8, Kallio discloses a method of routing data packets in a mobile communication system including a mobile communication node, the mobile communication node having at least first and second different network interfaces (See paragraph [0027], note that the first interface for communication with WLAN and the second for GSM), the method comprising the steps of:
providing connectivity with first and second different communication networks (See abstract and figure 1);
receiving, by one of the first or second interfaces, data from a remote corresponding node (e.g. MSC, see figure 1, item 120) via the first communication network (GSM network, see abstract);

in response to a trigger (See paragraph [0013], lines 11-12), generating a SIP protocol related handover request (See paragraph [0033]) by the mobile communication node to initiate a handover from the first communication network to the second communication network (e.g. WLAN, see abstract);

on completion of the handover, setting the first network interface to a sleep mode or switched OFF (See paragraph [0048], line 5, note that switching off the unused interface is a sleep mode of the interface);

However, Kallio does not explicitly teach that the initiation of the sleep mode is synchronized specifically with a cessation of a receipt of data packets via the first communication network. Neither does he teach that sending data packets to or receiving data packets from the remote corresponding node, such that just prior to re routing packets to the mobile communications node, the remote corresponding node is caused to mark a data stream to indicate to the mobile communications node that the data stream via the first network has come to an end.

Nonetheless, Mitts discloses terminating an access point is synchronized with a cessation of a receipt (e.g. an indication triggered by a message carrying a marker) of data packets via the first communication network (See abstract 7-14). Mitts further teaches sending data packets to or receiving data packets from the remote corresponding node (e.g. connection switch in the ATM network, see figure 1 and figure 3), such that just prior to re routing packets to the mobile communications node, the remote corresponding node is caused to mark a data stream to indicate to the mobile communications node that the data stream via the first network has come to an end (See abstract, lines 1-4 and 13-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made

to consider the feature taught by Mitts in Kallio's invention as a way to acknowledge the termination of data transmission or the end of a session that is no longer of need to communicate the data to the mobile because it would enable the mobile terminal to optimize the use of battery power consumption. Moreover, sending an indication that the data is to be discontinued from the interface being used and handed over via the other path would enable Kallio's system to switch a call before an ongoing call to fall below a predetermined quality of service attribute, mitigating the need for threshold conditions test.

12. Regarding claim 9, Kallio in view of Mitts discloses the method as claimed in claim 8, Kallio does not teach that the remote corresponding node marks a last one or a last few packets transmitted over the first communication network. Mitts on the other hand teaches that the remote corresponding node marks a last one or a last few packets transmitted over the first communication network (See column 6, lines 38-41). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kallio's invention with the additional limitation taught by Mitts because by sending an indication that the data is to be discontinued from the interface being used and handed over via the other path would enable Kallio's system to switch a call before an ongoing call to fall below a predetermined quality of service attribute, mitigating the need for threshold conditions test.

13. Consider claim 10, Kallio in view of Mitts discloses the method as claimed in claim 9, Mitts further teaches the mark for each packet is embedded in a packet header field (See column 2, lines 65-66). It would have been obvious to one of ordinary skill in the art at the time the

invention was made to embed a mark for each packet in the header field because it enables transmitting packets sequentially or on the same path serially rather than sending the packets and the mark on another signal path.

14. Consider claim 11, Kallio in view of Mitts teaches the method in accordance with claim 8, 9 or 10. Kallio further teaches that the handover request is sent from the mobile communication node to the remote corresponding node via the second communication network (Note that the second network is the GSM network, See paragraph [0054], lines 4-5), an acknowledgement message (note that the handoff command is an acknowledgement message as well) returned from the remote corresponding node (See paragraph [0057], lines 6-7). Kallio fails to explicitly teach that in response to the acknowledgement message, the remote corresponding node commences sending packets to the mobile communication node via the second communication network.

However, the examiner takes official notice that it is well known in the art, that sending as a response another ACK signal to the corresponding node by the mobile node after authenticating, providing the new IP address from the corresponding node, and finalizing the handoff process, is solely for securing records of robust communication sessions and validating successful handoffs. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize acknowledgement message to the CN from MN as a notification of the end of a handoff session because it constitutes a further measure to ensure robust transfer of data. Note further that this modification assures that reliability issues that may arise from synchronous problematic events are mitigated.

15. In reference to claim 12, Kallio teaches a computer program product comprising program code stored on a computer readable storage medium for execution of a method by a mobile communication node, having at least two different interfaces (See abstract and figure 1) for providing connectivity with first and second different communication networks (e.g. MSC, see figure 1, item 120), respectively, whereby the method comprising the steps of:

when the mobile communications node is receiving data in a data stream from a remote corresponding node, performing a handover of the data stream from the first communication network to the second communication network (See abstract lines 11-15);

setting, by the computer program product, the interface for the first communication network (e.g. GSM interface) to a sleep mode (See paragraph [0048], line 5).

Kallio fails to teach that the handover to the second communication network in synchronization with a cessation of a receipt of data packets via the first communication network.

However, Mitts discloses that the handover is in synchronization with a cessation of a receipt (e.g. an indication triggered by a message carrying a marker) of data packets via the first communication network (See abstract 7-14). It would have been obvious to one of ordinary skill in the art at the time the invention was made to consider the feature taught by Mitts in Kallio's invention as a way to acknowledge the termination of data transmission or the end of a session that is no longer of need to communicate the data to the mobile because it would enable the mobile terminal to optimize the use of battery power consumption.

16. Consider claim 13, Kallio in view of Mitts teaches a computer program product as claimed in claim 12. Kallio as mentioned above discloses a process in which enables the mobile

communication node to initiate the sleep mode. Kallio does not teach that the sleep mode for a first network interface is in response to a marker in the received data stream indicating that the data stream. However, Mitts discloses a marker in the received data stream indicating that the received data stream via the first communication network or access point has come to an end (See abstract, lines 1-4 and 13-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kallio's invention with the feature taught by Mitts because by sending an indication that the data is to be discontinued from the interface being used and handed over via the other path would enable Kallio's system to switch a call before an ongoing call to fall below a predetermined quality of service attribute, mitigating the need for threshold conditions test.

17. Consider claim 14, Kallio teaches the computer program product as claimed in claim 12, Kallio teaches as mentioned above the initiation of the sleep mode for the first network interface (e.g. GSM, [0048], lines 5), he also teaches the acknowledgement sent mutually between the MSC and the mobile via the BSC (See [0050], lines 4-7). However, Kallio fails to explicitly teach that the sleep mode is initiated in synchronization with the sending of a handover acknowledgement message from the mobile communication node to the remote corresponding node. Nonetheless, Mitts teaches sending handover acknowledgement message is synchronized with the termination of packet from one path (See column 4, lines 15-18). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Mitt's teaching with Kallio's disclosure in order to save battery power in times where one interface corresponding to a receiver is no longer receiving data from said interface.

18. Consider claim 15, Kallio in view of Mitts teaches the method in accordance with claim 1, Kallio as mentioned above teaches initiation of sleep mode; however he does not teach that this initiation includes maintaining a network address of the mobile communication node on the first communication network (e.g. Access point network address or BSC network address).

Nonetheless, Mitts does teach that a network address of the access point which is a node on the first network is to be received (maintained for processing of handoff) by the second node (See column 4, lines 7-8). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Mitts' additional teaching with Kallio's disclosure in order to track packet origin and destination during the handoff.

19. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Kallio in view of Mitts as applied to claim 1 above, and further in view of Janevski et al (US 2004/0008645).

20. Consider claim 7, Kallio in view of Mitts discloses the method as claimed in claim 1, Kallio further discloses that the first network is a cellular network like GSM which is 2G network where as the second network is WLAN. While Kallio does not teach that the first network could be a 3G network like UMTS, he teaches however that the WLAN could be a 3G network (See [0008] and [0009]). The examiner acknowledges that it well within the grasp of one of ordinary skill in the art of telecommunication at the time the invention was made to integrate a 3G network like UMTS and upgrade it to handoff with a WLAN. However, the examiner provides Janevski, to further teaches that one of the first and second communication networks is a UMTS network and the other is a wireless local area network (See [0004]). It

would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kallio's invention in view of Mitts with the teaching of Janevski in order to integrate present technologies.

Response to Arguments

Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hason et al (US 2005/0250496) teaches a handoff communication method for heterogeneous wireless networks while minimizing power consumption of portable devices used in the communication with said networks.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ISSAM CHAKOUR whose telephone number is (571) 270-5889. The examiner can normally be reached on Monday-Thursday (8:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Perez Rafael can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

Art Unit: 2617

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/I. C./

Examiner, Art Unit 2617

/Rafael Pérez-Gutiérrez/

Supervisory Patent Examiner, Art Unit 2617